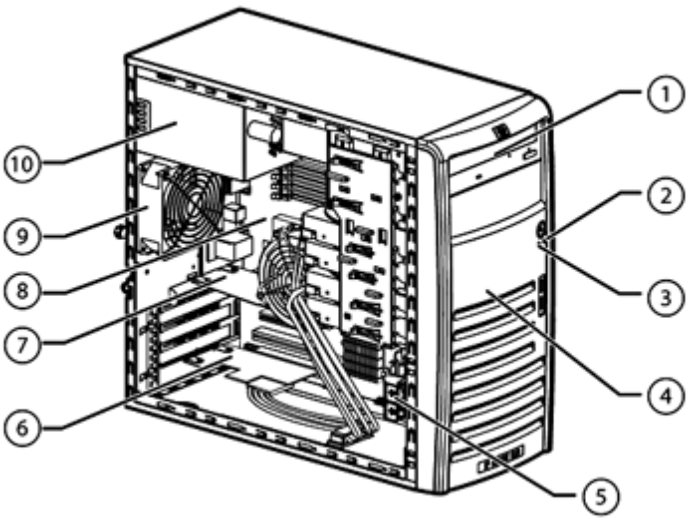
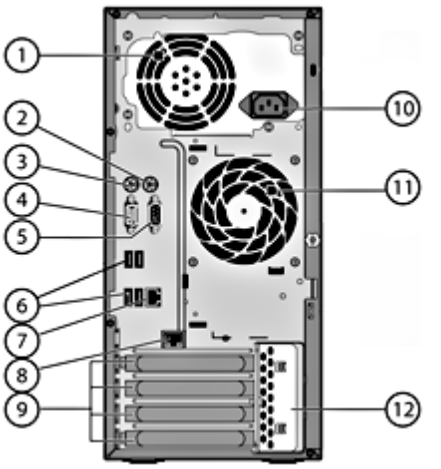
Overview





Front View:

1. CD-ROM Drive
2. Power LED
3. Drive Activity LED
4. Well ventilated chassis design
5. Full Length Card Retainer
6. HDD controller card (Optional)
7. HP LO 100c Management Card (Optional)
8. Main System Board
9. Rear System Fan
10. 370W Power Supply

Rear View:

1. PSU fan
2. PS/2 mouse port
3. PS/2 keyboard port
4. VGA port
5. Serial port A
6. Rear USB 2.0 ports
7. LAN port (RJ-45)
8. HP LO100c Remote Management Card port(Optional)
9. PCI slot covers
10. Power supply outlet
11. Rear system fan
12. PCI slot cover lock

At A Glance

Overview

- Processor:
  - Dual-Core AMD Opteron 1000 Series processors
  - Single-Core Athlon 64 3500+ processors
- Memory:
  - 512 MB Standard / 8 GB Maximum of PC2-5300 DDR2 667 MHz ECC unbuffered Memory
- Storage Controller:
  - 4 Port SATA controller with Embedded RAID on Motherboard (RAID 0,1,5)
- Internal Drive Support:
  - 4 HDD Support:
    - 2TB SATA max storage (utilizing 500GB CTO HDD)
    - 1.2TB SAS max storage (4 x 300GB)
- Network Controller:
  - Embedded NC320i PCI Express Gigabit Server Adapter
- Expansion Slots:
  - Two 32-bit/33MHz PCI at 3.3V slot
  - Two PCI-Express slots (x8 and x16).
- USB Ports:
  - Eight total USB ports (2 internal, 2 front, 4 rear)
- Form Factor:
  - Micro ATX tower
- Management:
  - Standard IPMI reporting
  - Lights Out 100c Remote Management Card (Optional)
- Warranty:
  - Protected by HP Services, including a one-year, limited warranty, Next Business Day 1 year on-site limited Global warranty - Certain restrictions and exclusions apply. (3-1-1 warranty offered in AP only).

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/4AA1-0483ENW.pdf

Processor
One of the following depending on Model

Dual-Core AMD Opteron 1210 (1.8 GHz)
Dual-Core AMD Opteron 1214 (2.2 GHz)
Single-Core AMD Athlon 3500+ (2.2 GHz)*
Dual-Core AMD Opteron 1216 (2.4 GHz)*
Dual-Core AMD Opteron 1220 SE (2.8 GHz)*
* Offered through Configure-To-Order only. See Factory Integrated Models section for more details

Cache Memory
One of the following depending on Model

2MB (2x1MB) Level 2 cache (Opteron models)
512KB Level 2 cache (Athlon models)

Chipset

nVidia MCP55S Pro

Memory Protection

Advanced ECC

Memory

Type	PC2-5300 unbuffered DDR2 SDRAM (667MHz)
Standard	512 MB
Maximum	8 GB

Network Controller

Embedded NC320i PCIe Gigabit Server Adapter

Expansion Slots

Slot Number	Bus Speed	Hot Plug Y/N	PCI Voltage	Notes
4	X16 PCI Express	No	n/a	Full Height
3	X8 PCI Express	No	n/a	In a x8 slot Full Height
1/2	32bit/33MHz PCI	No	3.3V	Full Height

NOTE: Only one brace for full length cards provided.
NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink.

Storage Controller
One of the following depending on Model

HP 8 Internal Port SAS HBA with RAID (0,1)
Integrated 4 port SATA controller with embedded RAID (0,1,5)*
*Embedded RAID setup instructions located in User Guide, CTO RAID set-up not available.
HP ProLiant 100 Series Server User Guide:
http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN

Standard Features

Storage	CD-ROM	48x IDE (ATAPI) CD-ROM Drive	
	Hard Drives		
	SATA	160GB SATA 7200 rpm Drive	
Maximum Internal Storage	**Type**		
	SAS (Not-hot plug)	1.2TB	(4x300GB)
	SATA (Non-hot plug)	2TB	(4 x 500GB*)
	*Offered through Configure-To-Order only. See Factory Integrated Models section for more details		
Interfaces	Parallel	0	
	Serial	1	
	Pointing Device (Mouse, PS2)	1	
	Graphics	1	
	Keyboard (PS2)	1	
	USB	8 total (4 rear, 2 front panel, 2 internal (one for USB Tape connectivity))	
		NOTE: Internal USB ports are optimal for the attachment of HP USB DAT Tape Drives	
		NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
	Network RJ-45 (Ethernet)	1	
	Management	Optional Lights-Out 100c Remote Management port	
Graphics	Integrated 2MB video controller		
Form Factor	Micro ATX Tower (4U)		
Industry Standard Compliance	ACPI V2.0 Compliant		
	PCI 2.3 Compliant		
	PXE Support		
	WOL Support		
	IPMI 2.0 compliance		
Manageability	Embedded IPMI standard reporting Optional HP ProLiant Lights-Out 100c Remote Management Card		

Standard Features

Security	Power-on password Setup password
Server Power Cords	12' country specific, lowline NEMA power cord. **NOTE:** Rack models ship standard with a 12' IEC cable. Most redundant power supply options ship with a 6' country specific power cord. Localized cables included with geographic specific models in other world regions.
Power Supply	370 Watts
System Fans	1 – non-redundant system fan shipped standard 1 – non-redundant CPU heatsink fan shipped standard
OS Support	Microsoft Windows Server 2003: Standard & Enterprise Edition (32 and 64 bit) Microsoft Windows Small Business Server 2003 Microsoft Windows 2003 Server, Web Edition Novell NetWare 6.5 SBS (only after SP6 release) RedHat Enterprise Linux SUSE Linux Enterprise Server **NOTE:** For an up-to-date listing of the latest ML115 OS support matrix, please see: http://www.hp.com/go/supportos **NOTE:** For an up-to-date listing of the latest drivers available for the HP server ML115, please see: http://h18023.www1.hp.com/support/files/server/us/family/model/5769.html?lang=en&cc=us **NOTE:** Drivers may also found on the base media for some Linux OS's. When configuring your server, please consult your base media driver base, or visit HP.com at: http://h18023.www1.hp.com/support/files/server/us/index.html **NOTE:** For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html
Optional ProLiant Essentials Value Packs	Optional software offerings that extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: • **Server Migration Pack** - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V). **NOTE:** For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials **NOTE:** Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information

Standard Features

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and/or storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging and custom packaging HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers, as well as, the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.

HP ProLiant Smart Buys (NA only)

The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options.

NOTE: ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf

---

HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support (3-1-1 warranty offered in AP only). Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

NOTE: For all server/switch warranty commitment and HP Care Pack part numbers need to be updated for each product type.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3kVA; these items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the

varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Extended Care - options provide a base line service level to ensure optimum server availability, delivering extended access to expert assistance, remote and onsite diagnostic support, and remedial hardware support.

- *Next Business Day on site coverage, 3 Years*

Continuous Care options deliver a recommended support level with committed same day response or fix times, designed to provide speedy problem identification and resolution ensuring high level of server availability.

- *4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years*

Total Care service options designed to provide round the clock support and complex problem resolution through integrated hardware and software support delivering high level of application and data availability taking into account your entire IT environment.

- *4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years*

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of ProLiant servers - and free customers people to focus on what they do best, their business.

- *Installation of a ProLiant server as per Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays*

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

Models

NOTE: ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf.

SATA Models

ML115 Opteron 1210 NHP-SATA (1P) 437288-xx1	**Processor(s)** One of the following depending on Model	(1) Dual-Core AMD Opteron 1210 (1.8GHz, 2MB Cache) (1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache)
ML115 Opteron 1214 NHP-SATA (1P) 437289-xx1	**Cache Memory**	2MB (2x1MB) Level 2 cache (Opteron)
	Memory	512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB)
	Storage Controller	HP Embedded 4 Port SATA Controller with embedded RAID (0,1,5)
	Hard Drive	160GB SATA HDD
	Internal Storage	Maximum 2TB (4 x 500GB) SATA
	Optical Drive	48x CD-ROM
	Form Factor	Micro ATX Tower

SAS Models

ML115 Opteron 1214 NHP-SAS (1P) 437290-xx1	**Processor(s)**	(1) Dual-Core AMD Opteron 1214 (2.2GHz, 2MB Cache)
	Cache Memory	2MB (2x1MB) Level 2 cache (Opteron)
	Memory	512 MB PC2-5300 ECC (DDR2-667Mhz) (1 x 512 MB)
	Storage Controller	HP 8 Internal Port SAS HBA with RAID (0,1)
	Hard Drive	72GB SAS HDD
	Internal Storage	Maximum 1.2TB (4 x 300GB) SAS
	Optical Drive	48x CD-ROM
	Form Factor	Micro ATX Tower

Country Code Key	XX=00	NA
	XX=01	Australia
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=20	Brazil
	XX=37	AP
	XX=42	Euro
	XX=AA	PRC
	XX=29	Japan
	XX=AB	Taiwan
	XX=AD	Korea

Configuration Information-Factory Integrated Models (North America Only)

NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option is a Factory Installable Option.
NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

Step 1: Base Configuration

Models	HP ProLiant ML115 NHP CTO Chassis (North America)	439138-B21
	Factory Integrated Models ship with:	
	Embedded NC320i PCI Express Gigabit Server Adapter	
	Keyboard and Mouse	
	370 Watts, PFC (Power Factor Correcting)	
	Tower Form Factor (4U)	
	NOTE: HP SATA Drive Models are limited to <2TB support.	
	NOTE: On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	AMD Athlon Processor Model 3500+ (2.2 GHz) Option Kit, FIO	440962-L21
	AMD Opteron™ Processor Model 1220SE (2.8 GHz) Option Kit, FIO	437376-L21
	AMD Opteron Processor Model 1216 (2.4 GHz) Option Kit, FIO	437375-L21
	AMD Opteron Processor Model 1214 (2.2 GHz) Option Kit, FIO	437374-L21
	AMD Opteron Processor Model 1210 (1.8 GHz) Option Kit, FIO	437373-L21
Memory	2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 2048 MB), Dual Rank	432806-B21
	1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 1024 MB), Dual Rank	432804-B21
	512 MB Unbuffered Advanced ECC PC2-5300 DDR2 DIMM (1 x 512 MB), Single Rank	432803-B21

Configuration Information-Factory Integrated Models (North America Only)

Hard Drives	**Serial ATA (SATA) - Non-hot Plug HDD**	
	HP 500GB 1.5G SATA 7.2K NHP 3.5" HDD, FIO*	404469-B21
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	*NOTE: Factory Integrated Only	
	HP Non-Hot Plug SATA Cable	442901-B21
	NOTE: The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21).	
	Serial Attached SCSI (SAS) Non-Hot Plug	
	HP 300GB SAS 3.5" 15K NHP	431950-B21
	HP 146GB SAS 3.5" 15K NHP	432093-B21
	HP 72GB SAS 3.5" 15K NHP	432095-B21
Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP DVD+R/RW 8X HH	383974-B21
	HP ProLiant 48X CD	398972-B21
	DVD ROM Drive 16x	217053-B21
	NOTE: For the installation of Windows and other OS's, a floppy drive (DC361B) may be required to complete driver installation. A USB drive key may not work to complete driver installation.	

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

NOTE: Some options may not be factory integratable. Please contact your local sales representative for additional information.

Operating Systems	**Pre-install Microsoft Windows 2003 SBS Standard Edition**	
	MS W2003 SBS R2 Std 1XX FIO Eng SW	432564-XX1
	MS W2003 SBS R2 Prm 1XX FIO Eng SW	432566-XX1

Country Code Key	XX=00	NA
	XX=01	Australia
	XX=03	UK
	XX=04	Germany
	XX=05	France
	XX=06	Italy
	XX=07	Spanish
	XX=20	Brazil
	XX=21	Hungarian
	XX=22	Czech
	XX=24	Polish
	XX=33	Dutch
	XX=37	AP
	XX=42	Euro

XX = AA	PRC
XX = 29	Japan
XX = AB	Taiwan
XX = AD	Korea

Options

Optional ProLiant Essentials Value Packs	**ProLiant Essentials Server Migration Pack**	
	ProLiant Essentials Server Migration Pack, No Media, 1-Migration License	435663-B21
	NOTE: This license allows 1 P2V, V2P, or V2V migration. Contains one license with a unique license activation key and documentation	
Memory	2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x2048 MB), Dual Rank	432806-B21
	1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x1024 MB), Dual Rank	432804-B21
	512 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1x512 MB), Single Rank	432803-B21
Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	48X CD-ROM Option, Carbon	398972-B21
	DVD-RW Drive Option Kit	383974-B21
	1.44 MB USB Diskette Drive	DC361B
	NOTE: For the installation of Windows and other OS's, a floppy drive may be required to complete driver installation. A USB drive key may not work to complete driver installation.	
Hard Drives	**Serial – ATA** (SATA) **– Non-Hot Plug** (SATA Models Only)	
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	HP 80GB 1.5G SATA 7.2K NHP 3.5" HDD	383410-B21
	NOTE: When purchasing systems with the 500GB Non-Hot Plug SATA drives, please reference the Configuration Information Section of this QuickSpecs to order via Configuration to Order.	
	HP Non-Hot Plug SATA Cable	442901-B21
	NOTE: The purchase of a SATA Hard Disk Drive requires the purchase of HP SATA Cable option kit (P/N 442901-B21).	
	Serial Attached SCSI (SAS) **Non-Hot Plug** (SAS Models Only)	
	HP 300GB SAS 3.5" 15K NHP	431950-B21
	HP 146GB SAS 3.5" 15K NHP	432093-B21
	HP 72GB SAS 3.5" 15K NHP	432095-B21
	NOTE: The purchase of SAS hard drives requires the purchase of part number 430479-B21, the HP Internal SAS/SATA 4-Port Cable. This cable is standard in the SAS BTO model.	

Options

Storage Controllers	HP SC44Ge Host Bus Adapter	416096-B21
	HP SC11Xe Host Bus Adapter	412911-B21
	HP 8 Internal Port SAS HBA with RAID **NOTE:** PCI-X Interface (PCI 32bit/33MHz compatible) **NOTE:** Slot 2 only supports standard PCI 32 bit add-on card due to proximity to Heat Synk.	347786-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 **NOTE:** PCI-X Interface (PCI 32bit/33MHz compatible) **NOTE:** Slot 2 only supports standard PCI 32 bit add-on card due to proximity to Heat Synk	374654-B21
	128MB Battery-Backed Write Cache Enabler **NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller and Smart Array 642 Controller.	351580-B21
	HP SAS/SATA 4-Port Cable **NOTE:** The purchase of a SAS Storage Controller requires the purchase of HP SAS/SATA 4-Port Cable (P/N 430479-B21) **NOTE:** On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN	430479-B21
Communications	HP NC110T PCI Express Gigabit Server Adapter **NOTE:** Does not support Windows 2000	434905-B21
	HP NC150T PCI 4-port Gigabit Combo Switch Adapter	367132-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	Agere 2006 PCI Hi-Speed 56K Modem	440519-B21
Tape Backup Drives	**NOTE:** Installation of SCSI internal tape drives in a ML115 model requires SCSI controller kit (PN: 374654-B21). **NOTE:** The SCSI Controller Kit (P/N 374654-B21 cannot be installed in Slot 2 due to proximity to heat sync **NOTE:** For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	USB Tape Drives	
	HP StorageWorks DAT 40 USB Internal Tape Drive (Carbonite)	DW022A
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	DAT Tape Drives	
	HP StorageWorks DAT 40 SCSI Internal Tape Drive (Carbon)	C5686C
	HP StorageWorks DAT 72 SCSI Internal Tape Drive (Carbon)	Q1522B
	Ultrium Tape Drives	
	HP StorageWorks Ultrium 232 SCSI Internal Tape Drive (Carbonite)	DW064A
	HP StorageWorks Ultrium 448 External Tape Drive (Carbonite)	DW017B
	HP StorageWorks Ultrium 448 Internal Tape Drive (Carbonite)	DW016A

Options

Installation of Server into Racks	Monitor/Utility Shelf	253449-B21
Lights Out Management Card	HP ML115 Lights-Out 100c Remote Management Card	437372-B21
UPS	HP T1000 UPS, JPN/TWN	AF404A
	HP T1000 UPS, NA	AF403A
	HP T1000 UPS, INTL	AF405A
	HP T750 UPS, Low Voltage (NA/JPN)	378439-D71
	HP T750 UPS, High Voltage (INTL)	378439-B31
USB Options	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
	USB 2.0 4-port HUB	DG954A
HP KVM Switch Options	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack **NOTE:** Required for supporting USB peripherals.	AF613A

NOTE: For additional information regarding KVM Switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm

Service and Support Offerings (HP Care Pack Services)	**Hardware Services 4-Hour On-site Service**	
	13-Hour x 5-Day Coverage, 3 Years	U4434E
	24-Hour x 7-Day Coverage, 3 Years	U4435E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years	U4433E
	Hardware Services 6 Hour Call-to-Repair	
	24-Hour x 7-Day Coverage, 3 Years, 6 Hour Call-to-Repair	U4436E
	Hardware Installation Service	
	HP Install ProLiant ML115 Service	U4444E
	NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack.	

HP ProLiant ML115 Models

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

512 MB of PC2-5300 DDR2 SDRAM running at 512 MB with Advanced ECC capabilities Memory installed (1 x 512 MB SDRAM DIMM).

Standard Memory Plus Optional Memory

Up to 5120 MB memory is available with the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

Standard Memory Replaced with Optional Memory

Up to 8192 MB of memory is available with the removal of the standard 512 MB of memory and the optional installation of PC2-5300 un-buffered ECC DDR2 SDRAM DIMM Memory kits.

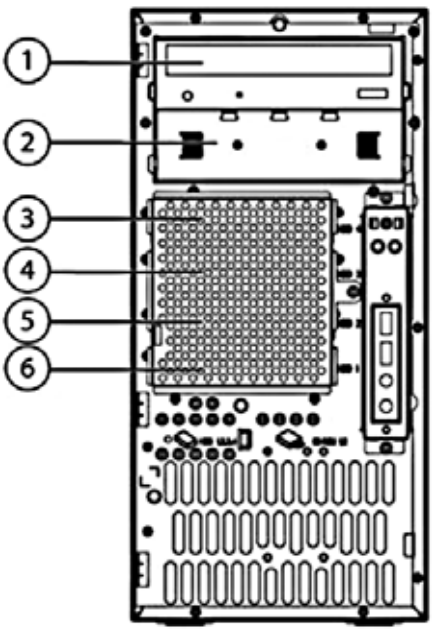
NOTE: The below chart does not represent all possible memory configurations.

NOTE: In memory configurations requiring 2 DIMM and 4 DIMM configurations, the memory must be paired for optimal performance. This means that DIMMs in slot 1 and 3 have to be identical, in slot 2 and 4 have to be identical. (For example, the Optional memory configuration shown below)

Memory		Slot			
		4	3	2	1
Standard	512 MB	Empty	Empty	Empty	512 MB
Optional	5120 MB	2048 MB	512 MB	2048 MB	512 MB
Maximum	8192 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

2048 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 2048 MB), Dual Rank	432806-B21
1024 MB Unbuffered Advanced ECC PC2-5300 DDR2 (1 x 1024 MB), Dual Rank	432804-B21
512 MB Unbuffered Advanced ECC PC2-5300 DDR2 DIMM (1 x 512 MB), Single Rank	432803-B21



1	48x IDE (ATAPI) CD-ROM
2	Removable Media Bays (1.6" each)
3, 4, 5, 6	Four (4) Non-Hot Plug Drive Bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
DVD + CDRW Drive	2	1 or 2	Integrated IDE (ATAPI)
DVD-RW Drive	2	1 or 2	Integrated IDE (ATAPI)

Hard Drives (SATA Models only)

SATA 1.5Gb – Non-Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 500GB 7.2K SATA 250GB 7.2K SATA 160GB 7.2K, SATA 80GB 7.2K, SATA	Up to 4	3,4,5,6	4 Port SATA controller with Embedded RAID on Motherboard (0,1,5)

Storage

Hard Drives (SAS Models only)

SAS – Non-Hot Plug

	Quantity Supported	Position Supported	Controller
3.5-inch 300GB 15K SAS 145GB 15K SAS 72GB 15K, SAS	Up to 4	3,4,5,6	HP 8 Internal Port SAS HBA with RAID (0,1)

Maximum Storage Capacity – SATA/SAS Models

Internal	**SATA**	1TB (4x250GB (BTO) 2TB (4 x 500GB (CTO)
	SAS	1.2TB (4x300GB)
Total	**SATA**	1TB (4x250GB (BTO) 2TB (4 x 500GB (CTO)
	SAS	1.2TB (4x300GB)

Tape Drives

NOTE: A SCSI controller needs to be purchased to operate internal SCSI devices in the SATA Models.
NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/Division/10233.html (Worldwide)

	Position Supported	Controller	Controller/HBA Option Kit Part Number
Internal USB Tape Drives DAT 40 USB DAT 72 USB	2	USB 2.0 port	N/A
External USB Tape Drives DAT 40 USB DAT 72 USB	External	USB 2.0 port	N/A
Internal SCSI Tape Drives DAT 40 DAT 72 Ultrium 232 Ultrium 448	2	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 **NOTE:** Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink	374654-B21
External SCSI Tape Drives DAT 40 DAT 72 Ultrium 232 Ultirum 448	External	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 **NOTE:** Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink	374654-B21

Power Specifications

Part Number	416121-001
Spare Kit	419029-001
Operational Input Voltage Range (Vrms)	100 to 127 and 200 to 240 V auto ranging
Frequency Range (Nominal) (Hz)	50 to 60 Hz

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	N/A	370	N/A	N/A	370	N/A
Nominal Input Current (A rms)	N/A	8	N/A	N/A	4	N/A
Max Rated Input Wattage Rating (Watts)	N/A	N/A	N/A	N/A	N/A	N/A
Max. Rated VA (Volt-Amp)	N/A	N/A	N/A	N/A	N/A	N/A
Efficiency (%)	N/A	>65%	N/A	N/A	>65%	N/A
Power Factor	N/A	N/A	N/A	N/A	N/A	N/A
Leakage Current (mA)	0.25mA (at 60HZ)	N/A	N/A	N/A	N/A	N/A
Maximum Inrush Current (A peak)	N/A	No component was damaged and input fuse shall not blow	N/A	N/A	No component was damaged and input fuse shall not blow	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A	N/A

System Specifications

	Power **
HP ProLiant ML115 Fully Configured	(see **)
Fully Loaded System output Wattage (W)	370W
Fully Loaded System Input Current (A rms)	8A @ 115V, 4A @ 230V
Fully Loaded System Thermal (BTU- Hr)	1907BTU
Fully Loaded System VA (Volt-Amp)	920
System Leakage with all power supplies loaded (mA)	0.75mA@240V 0.45mA@120V
System Inrush Current with all power supplies loaded (A)	80A
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (4) HDDs, (1) CD-ROM, (1) DVD-ROM, (4) PCI cards, and (1) power supply.

Power Cords (13 Cord Sets)	**Power Cord Part Number**
Country	
APD	100614-009, 100613-008, 139867-004, 187487-004 (India)
Brazil	285052-001
Australia	100661-001
Euro	100614-009
France	100614-009
Germany	100614-009
Japan	139867-004
PRC	286496-001
UK	100613-008
US, Taiwan	121565-001

System Unit	**Dimensions** (HxWxD) (with feet)	14.46 x 6.88 x 16.76 in (36.7 x 17.5 x 42.6 cm)	
	Weight (approximate)	23.15 lb (10.5 kg)	
	Input Requirements (per power supply)	Range Input Voltage	100 to 127 VAC/200 to 240 VAC
		Normal Line Voltage	115 or 230 VAC
	Line Frequency	50 to 60 Hz	
	Rated Input Current	load 8A at 115VAC, 4A at 230VAC	
	BTU Rating	1907 BTU	
	SCSI Connectors (SCSI Models only)	One internal LVD/SE connector for U160 devices, plus two internal SE connectors for legacy devices.	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	370W
		Maximum Peak Power	370W
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Shipping	-31° to 140° F (-35° to 60° C)
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Non-operating	10% to 95%
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	5.4
		L pAm (dBA)	36
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	5.9
		L pAm (dBA)	38

HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD 411275-B21	**160GB 7,200 rpm**	**Capacity**	160,041 MB	
		Height	1.0 in. (26.1 mm)	
		Width	4.0 in. (101.6 mm)	
		Interface	Serial ATA	
		Transfer rate synchronous (maximum)	1.5 Gb/s	
		Seek time (typical reads, including settling)	Single track	0.9 ms
			Average	9.0 ms
			Full-stroke	17.8 ms
			Rotational speed	7,200 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)	

Technical Specifications

NHP 72GB 3G SAS 15K 3.5" HDD 431950-B21	**72GB 15K**	**Capacity**	73,407,856,856	
		Height	1.0 in (25.4mm)	
		Width	4.0 in. (101.6 mm)	
		Interface	SAS	
		Transfer rate synchronous (maximum)	3 Gb/sec	
		Seek time (typical reads, including settling)	Single track	0.27 ms
			Average	3.5 ms
			Full-stroke	3.5 ms
			Rotational speed	15,000 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	143,374,737
		Operating Temperature	50° to 95° F (10° to 35° C)	

48X Max IDE (ATAPI) CD-ROM Drive 398972-B21	**Disk**	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2)	
			Photo CD (Single and Multi-session)	
			Mixed Mode (Audio and Data combined)	
			CD-R	
		Capacity	540MB (Mode 1, 12 cm)	
			650MB (Mode 2, 12 cm)	
	Block Size	Mode 1	2,048 bytes, 1024 bytes	
		Mode 2	2,340 bytes, 2,336 bytes, 1024 bytes	
		CD-DA	2,352 bytes	
		CD-XA	2,328 bytes	
	Interface	IDE (ATAPI)		
	Access Times (typical)	Random	<100 ms	
		Full-Stroke	<150 ms	
	Data Transfer Rate	Sustained	3000 to 7200 KB/s (20X to 48X)	
		Burst	150 KBps to 7,200 KBps	
		Bus Rate	16.7 MBps	
	Cache Buffer	128 KB		
	Start-up Time (typical)	< 7 seconds		
	Stop Time	< 4 seconds		
	Laser Parameters	Type	Semiconductor Laser GaA1As	
		Wave Length	780 ± 25 nm	
	Operating Conditions	Temperature	41° to 122° F (5° to 50° C)	
		Humidity	10% to 90%	
	Dimensions	(HxWxD, maximum)	1.63 x 5.75 x 7.87 in (41.3 x 146 x 200 cm)	
		Weight	2.64 lb (1.2 kg)	

Technical Specifications

4 port Embedded SATA controller	**SATA Protocol**	SATA 2, 3Gb/s
	SATA Ports	4 internal
	Port transfer rate	1.5 Gb/s total
	Maximum Capacity	up to 2 TB (4 x 500GB non hot plug SATA HDD)
	RAID Levels Supported	RAID 1+0 (Striping & Mirroring) RAID 1 (Mirroring) RAID 0 (Striping) RAID 5 (Striping with parity)
	Logical RAID Volumes Supported	**NOTE:** On SATA models with embedded RAID, setup instructions are located in User Guide, CTO RAID is set-up not available. HP ProLiant 100 Series Server User Guide: http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00368941/c00368941.pdf?jumpid=reg_R1002_USEN
HP 8 Internal Port SAS Host Bus Adapter with RAID (SAS Model only)	**Dimensions** (excluding bracket)	6.6 x 2.5 x 0.6 in (16.8 x 6.4 x 1.6 cm)
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS (Serial Attached SCSI) 1.5 Gbps SATA (Serial Advanced Technology Attachment)
	Architecture	64-bit
	SAS Connectors	2 internal SFF8484 x4 Wide SAS Connectors 12 Gbps per x4 Wide SAS Port (4 x 3 Gbps)
	Data Transfer Method	64-bit wide, PCI-X 133 MHz (1 GB/s maximum bandwidth)
	PCI Bus Speed	PCI-X-133 and 3.3 volt PCI compatibility only
	PCI	PCI-X and 3.3 volt PCI compatibility only
	Simultaneous Drive Transfer Ports	2 x4 Wide SAS Connectors
	Port Transfer Rate	12 Gb/s per x4 Wide SAS Port (4 x 3 Gb/s)
	Software upgradeable Firmware	Yes
	Maximum Capacity	576GB (8 x 72GB)
	Memory Addressing	64-bit, supporting servers memory greater than 4 GB
	Logical Drives Supported	Up to 2 Logical Volumes Up to 10 drives total in all RAID volumes Up to 2 Drives per RAID 1 Up to 8 Drives per RAID 0
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	4-MB flashable ROM
	Disk Drive and Enclosure Protocol Support	3 Gbps SAS and 1.5 Gbps SATA
		NOTE: Slot 2 only supports standard PCI 32 bit add-on card due to proximity of the Heat Sink

Technical Specifications

Embedded NC320i PCIe Gigabit Server Adapter	**Network Interface Compatibility**	10Base-T/100Base-TX/1000Base-TX	
		IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	Single lane (x1), 100MHz PCI Express Reference Clock	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45 connector	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

© Copyright 2007 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation. Opteron and Athlon are a US registered trademark of AMD Corporation.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.